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SOIL CONSERVATION

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Soil Conservation.

EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

DONALD A. WILLIAMS
ADMINISTRATOR, SOIL CONSERVATION SERVICE

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

★ THIS MONTH ★

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WILDLIFE STAMPS.—The National Wildlife Federation is now distributing wildlife conservation stamps. The series was started in 1938 when Ding Darling, famous newspaper cartoonist and first president of the Federation, painted a set of poster stamps to raise money for the struggling, young organization.

The 1956 issue contains two new features. One group of six stamps shows kinds of wildlife that are threatened by extinction: The grizzly bear of the Western mountain region; the Everglade kite; the depleted sturgeon of the Great Lakes; the rare whooping crane; the Montana grayling of the Northwest; and the Key deer, a diminutive race of whitetails found only in the coral islands off Florida.

The other new feature is a series of stamps depicting nature's camouflage. The American bittern, smallmouth bass, green snake, snowshoe hare, woodcock and luna moth are painted in scenes showing how natural coloration helps protect the animals from their enemies.

Editors are invited to reprint material originating in this magazine.



FRONT COVER.—Daffodils on the contour, Van Hevelingen Nursery, Multnomah City, Oreg.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

More Grass... Less Cotton

More grass and sorghums and less cotton help the Buchanans of west Texas control wind erosion and provide a more stable income.

By W. S. GOODLETT

YEAR-ROUND grazing for his herd of 20 registered Herefords is being provided, and wind erosion damage is being greatly reduced on Sam F. Buchanan's farm-ranch setup about 9 miles northeast of Big Spring, Tex., as the result of a soil and water conservation program which puts each acre of land to its proper use.

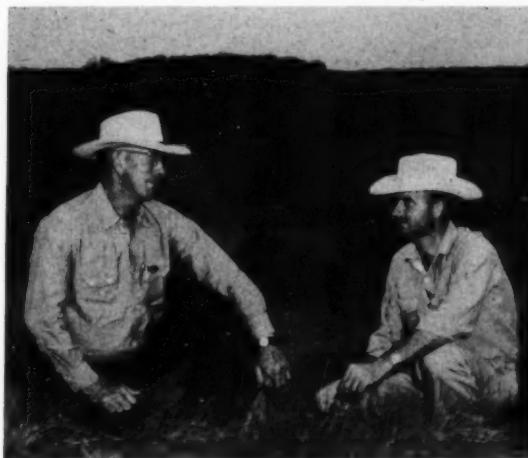
Buchanan, a past president of the Howard County-South Plains Hereford Association, owns 320 acres of cultivated land and two sections of rangeland. He and his brother, Roscoe, own the cattle jointly, and the latter has one section of range. Soil surveys show that much of the land is unsuited for cultivation.

Back in 1932, Sam Buchanan acquired a 35-acre sandy field on which cotton had been grown for many years. By 1949, this tract was threatening to seriously damage all the land around it. The field had been blown out to a depth of 2 feet with the soil being drifted in a high ridge along the turnrow at the edge.

Buchanan decided to try to do something about this eroded field and became a cooperator of the Martin-Howard Soil Conservation District in 1948. He received technical guidance from the Soil Conservation Service, and seeded the 35 acres to sand and weeping lovegrasses between 1949 and 1951. About half of the field was seeded with two rows of each of the grasses alternating, while the grasses were mixed on the other tract.

The lovegrasses green up early in the spring and provide good grazing and play a prominent part in his year-round grazing program. Buchanan plants hairy vetch and rye on some of his cultivated land for winter grazing, and has been planting Sudan grass for summer use. The lovegrasses fill the gap between these. Twenty acres of sandy land were planted to Sudan grass

Note.—The author is area conservationist, Soil Conservation Service, Big Spring, Tex.



Sam F. Buchanan, rancher, and Marion F. Everhart, SCS conservationist, of Big Spring, Tex.

last year to provide a residue cover in which blue panicum grass will be planted this spring. Blue panicum is a perennial and extremely drought resistant grass. Buchanan believes that it would be much better for his land as well as good insurance against dry years to have as much of his grazing land as possible in perennial crops. In addition, he plants about 60 acres to a mixture of 2 parts of hegari and 1 of redtop sumac cane. This is cut as bundle feed for winter use.

About two-thirds of Buchanan's rangeland is very sandy. Heavy grazing with very little summer rest over the past years had reduced the stand of native grass and had almost eliminated the best grasses. He rests all of his sandy rangeland every summer for at least 4 months, then uses this grass during the remainder of the year. In addition, he has over seeded 100 acres of this land to a mixture of native bluestem, switchgrass, Indian grass, and sand lovegrass.

In trying to get each acre of his land into the best possible use, Buchanan is controlling mesquite and prickly pear on about 30 acres.



Cattle grazing lovegrass on the Buchanan ranch.

All of the mesquite has been killed with kerosene which is poured around the base of each tree. The prickly pear has been hand grubbed. The remainder of his rangeland has a growth of Havard oak, known locally as shinnery, in addition to the native grasses. The best control of this low growing oak, believes Buchanan, is in managing his rangeland to provide for strong healthy grass plants that can compete successfully with the scrub oak.

All of Buchanan's cropland is terraced and farmed on the contour to conserve moisture, and he leaves a 14-inch stubble on his grain sorghums to provide protection against wind erosion.

Buchanan will plant cotton this year on 93 acres of his land that is best suited to this crop. The average yield of cotton in this area is around one-third of a bale to the acre. The last 5 years have been very dry; in fact, there was so little moisture in 1952 that a crop was not planted. The yield in 1953 and 1954 was around one-fourth of a bale to the acre. In 1955 he made only 14 bales on 100 acres due to extremely dry weather, with only 6 inches of rain from July 1954 until January 1956, a period of 19 months.

A son, D. C. Buchanan, is following in his father's footsteps in establishing a similar program on an adjoining farm which he operates along with three others. The son is operating a profitable dairy from a herd of 50 cows.

A 30-acre field on the son's farm was being severely damaged by wind erosion with some sand drifts as high as 12 feet being formed. This field was seeded to a mixture of switch,

Indian, bluestem, and sand and weeping lovegrasses in sorghum stubble in 1951 and made a good stand despite the drought.

All grasses on this field made seed the past 3 years on less than an average of 10 inches of rain. This field has been rested during the summer each year and grazed during the winter with the dairy cattle. He has been able to graze a cow to the acre on this field for a period of 3 months. In the fall of 1954, D. C. Buchanan harvested 3,000 pounds of combine run grass seed from this field. He plans to use this seed to revegetate additional acres of sandy land.

Young Buchanan is planting 200 acres of redtop sumac cane each year for silage, and also plans to try switchgrass in rows. He uses hairy vetch and rye for winter grazing, and has some land in cotton.

TREES PROTECT.—Planting steep slopes to trees protects the land and puts it to good use, and with the Nation's timber supply rapidly shrinking, this is sound land use and sound economy as well.

SEEDLINGS READY.—About 21,000 good 4-year-old white pine seedlings will be ready for purchase from the Northeastern Worcester County (Mass.) Soil Conservation District in April. The supervisors will let district cooperators know how and where to pick them up.

The seedlings are growing in the nurseries established in the spring of 1954 at Lancaster, Leominster, and Littleton by the Worcester Council of Boy Scouts of America.

—GAYLAND FOLLEY

Vermont Brothers Improve Farm

The Gilbert brothers wanted to raise their standard of living by increasing the productivity of their land—they became efficient soil conservationists and did both.

By GEORGE W. KNIGHT

"WHEN I came home from the army in 1945 I decided I'd stay on the farm if I could make a good living from it; otherwise, I was through. I wanted a good standard of living: new car, new barn, attractive home, and so on." Eustache Gilbert thus told his views to his older brothers, Sauveur and Eudore Gilbert, who had been operating the 200-acre dairy farm near Montpelier, Vt.

Note.—The author is a Soil Conservation Service technician at Montpelier, Vt.

"We're right with you, boy," the brothers chimed in. They were tired too of just scratching a living from the unyielding earth.

So the brothers tried different things. There was no upturn in production that could be noticed. Expected results didn't come about. Like the time a salesman convinced them that the land needed phosphate fertilizer. They bought 18 tons. But the phosphate didn't change the big boulders that dotted their pastures. It didn't remove the tree stumps. Nor did it change the poor-quality vegetation into something the cows would lick their chops over.

Then the Gilbert brothers sensed that their soil was unyielding because they weren't using or treating it right.

They started reading the farm magazines. They learned they might get help from the Soil Conservation Service, through their local soil conservation district.

In 1949 SCS technicians helped the Gilberts plan a conservation program for the whole farm. The brothers signed an agreement with the Winooski Soil Conservation District to carry out the program. That entitled them to use all the district's resources in their conservation work.



Eudore, Eustache, and Sauveur Gilbert.

Since then the Gilberts have been moving ahead. They have reached that high standard of living they were seeking. They are now working toward a still higher one.

Production figures tell the story. In 1948, the year before the Gilberts started their conservation program, they were milking 43 of their 72 cows. That year the cows produced 101,732 pounds of milk. In 1955 the brothers had 98 head of cattle, were milking 60 by autumn. They figured milk production for the year at about 400,000 pounds.

In mid-1955 the Gilberts were milking 13 fewer cows than at the same time the previous year. But they were getting 500 to 700 pounds more milk daily. Why? Better pastures and meadows! They used to have only 3 months of good grazing. Now they have 6.

Gross income from milk in 1955 was almost three times as much as it was in 1948. Net income was more than three times as much.

The way it was in 1949, the Gilberts had to buy hay every year. Not any more. Not since 1954. That year they put up more than 200 tons of their own hay. Now they produce all the hay they can use.

The cows are fed a 16 percent protein dairy ration concentrate. They get little of this, however, when the pastures are lush. Then they may go 4 or 5 days without any grain or other concentrates.

Although the Gilberts have increased the number of their cows from 72 to 98, they spend only about \$5,200 a year for grain. A team of horses and 30 head of young cattle account for \$1,000 of the total grain bill.

In addition to milk receipts, the brothers have a tidy income from maple syrup produced by their well-managed woodland.

Two years ago the Gilberts completed a big barn that they paid for entirely from the increase in milk production. It's big enough for 70 milk cows. They used lumber from their own woodland for the barn. They did all the work themselves. It cost \$8,600. Would have cost them at least \$5,000 more if they had to buy the lumber and pay for the labor, they figure.

The Gilberts have also modernized their home. Again they used lumber from their own woodland. Interior trim was done in black cherry and white ash. Eudore did all the trim and



Stumps, rocks, and brush dotted the farm before the Gilbert brothers started their improvement work.

cabinet work. He's the cabinet maker of the family. He also makes violins as a hobby.

"We used all the money we could scrape together on our conservation work," Eudore said, "but it has been a great investment."

To get their conservation program rolling, the Gilbert brothers bulldozed the tree stumps, rocks, hummocks, and brush off the land. That was the first step in getting their land ready for full production of top-quality grazing and hay crops. They spread this job over several years. The total cost was about \$4,000.

Next they harrowed the cleared fields. They spread 3 tons of lime and fertilized with 700 to 800 pounds of 0-14-14 an acre plus barnyard manure enriched with superphosphate.

With the nurse crops the Gilberts seeded grasses and clovers. The cows grazed the nurse crops off and then the grasses, and clovers came through.

Before the brothers began their conservation work, their cows had to get along on June grass, spiraea (hardhack) and other poor vegetation. Now they feast on ladino and alsike clovers, bromegrass, and timothy.

The 60 acres of pasture is divided into five plots for rotation. Sixty acres of meadows furnish hay, mostly timothy. The meadows are usually grazed before and after hay cutting. Weeds are kept under control by yearly mowing.

The Gilberts are alert to their soil's needs. They keep the land limed and fertilized according to scientific tests.

(Continued on page 213)

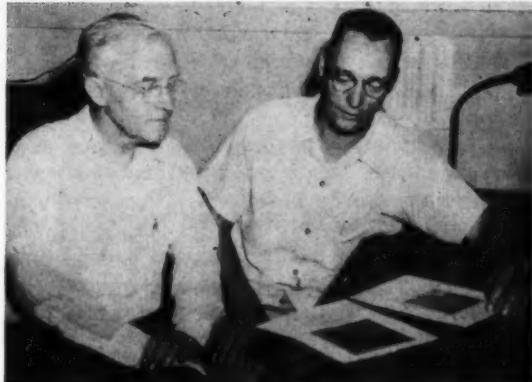
Conservation on the Buckskin Hills

A former university professor and his tenant cooperate with their soil conservation district to check erosion and restore fertility to a rundown farm in northeastern Nebraska.

By WALDO H. RODENE

ALL of us in northeast Nebraska are familiar with the buckskin hills, a descriptive term that characterizes the region and at the same time indicates that soil erosion is a serious problem. To those not acquainted with this area it means that the once dark fertile topsoil that covered the hilltops and hillsides has gradually been eroded away by wind and water—exposing a light yellowish brown subsoil. From this light colored soil the term buckskin has originated. As these buckskin areas grow larger, production goes down, since the topsoil has been washed away.

Note.—The author is work unit conservationist, Soil Conservation Service, Wakefield, Nebr.



Joseph Alexis and Waldo H. Rodene of SCS checking soils and land use maps.

For some time local Soil Conservation Service technicians, the county extension agent, vocational agriculture and veteran instructors had been interested in working on an eroded farm to prove the value of their recommendations. Joseph Alexis, a former instructor at the University of Nebraska, who owns a farm 3 miles north of Emerson, Nebr., offered to place it under a complete conservation program. Alexis stated that, "Erosion has carried on its work of destruction on our farm during the last several years to the extent that it hardly seemed worthwhile to cultivate the ground any longer." He became a cooperator with the Soil Conservation District in 1951. William Steinman, operator of the farm said, "I would like to see for myself what soil conservation practices can do for a farm such as this. But, I'm



Terraces, strip crops, and grass waterways on the Alexis farm of the Buckskin Hills.

doing this more for my boys than for myself. They are going to learn a lot and will need all the information they can get in order to make a good living on farms such as this in the years to come."

For comparison purposes, the average crop production for the years 1943 to 1951 was taken from records as follows: Corn—21 bushels per acre, oats—19 bushels per acre. The use of alfalfa is mentioned only once during that period. Erosion was severe. Rills were many. A 25-foot gully was gouging its way through the west part of the farm. Cockleburs thrived.

The soil conservation program began on this farm in the spring of 1952 when approximately 2 miles of broad base gradient terraces were constructed, 5 acres of waterways and turnrows established, and 20 acres seeded to alfalfa. About \$1,000 was spent for fertilizer and seed. Small check plots were marked off. During the first year the corn yielded 44 bushels per acre, as compared to 15 bushels on the check plot; oats yielded 25 bushels per acre, as compared to 10 bushels on the check plot; and an excellent stand of legumes was established.

In 1953 more terraces and waterways were added, fertilizer was applied, and 15 acres seeded to bromegrass and alfalfa. That year the corn yielded 46 bushels per acre; oats, 20 bushels per acre; beans, 20 bushels per acre; and the alfalfa produced more than 1 ton per acre per cutting.

In 1954 the corn yielded 50 bushels per acre; oats, 41 bushels and alfalfa, 1 ton per acre per cutting. The huge gully was shaped into a waterway and seeded.

In 1955 more alfalfa and bromegrass were seeded. Though rainfall was a limiting factor, the oats yielded 45 bushels per acre and alfalfa about a ton per acre for the first two cuttings, the last being kept for seed. Because of the continued dry weather the corn yielded only 13 bushels per acre.

To date 7.3 miles of terraces have been constructed, and 11 acres of waterways have been established, plus the turnrow and roadside seedings.

William Steinman stated, "It is hard for me to recall just what the farm looked like



William Steinman, tenant, and Joseph Alexis, farm owner, checking prospects for the corn crop in 1955.

only 5 years ago—rough, eroding, and sparse in growth. Today the rills are gone, and erosion has stopped."

Joseph Alexis states, "Due to the interest of William Steinman and his sons, who believed in the possibility of restoring the farm to productivity, and to Waldo Rodene, work unit conservationist, and his colleagues in soil conservation in northeastern Nebraska, we became convinced that our farm had not completely lost its value for future generations. Personally I felt it the duty of those who own the land now or in the future to preserve it for the citizens who are to follow. The land must be restored to full productivity.

"When we were at the farm a few days ago, we were no longer confronted with the deep canyon of the past. The rains are no longer carrying off the soil. The water that falls from the skies now remains in the terraces, to advance the growing crop a second and third day after the showers have passed by. Nothing can be more stimulating to a farmer than to see his plot of land extend its usefulness instead of shriveling to worthlessness and to note in the course of the years an increasing instead of a diminishing crop."

Many tours with good attendance have been held on the farm by Waldo H. Rodene of the SCS, Howard Gillaspie, county extension agent, school teachers, bankers, and others.

Teamwork to Conserve Soil and Water

The Latah Soil Conservation District held a family reunion of supervisors, SCS technicians, county agents, and others who helped promote the district program over its 15 year existence.

By HUGH F. EAMES

At a luncheon reunion at Moscow, Idaho recently, Latah Soil Conservation District demonstrated how 15 years of tightly built-in leadership and teamwork have been developed into highly effective community service.

It was a unique family affair—an informal and almost spontaneous gathering of men who had served as supervisors of the farmer-organized and farmer-operated enterprise, under Idaho state law, since May 1, 1940. Guests included representatives of the Soil Conservation Service, Extension Service, and the Agricultural Stabilization and Conservation county committee and its ACP program. Altogether 32 people were there. Among them were 18 of the 19 farmers who have been supervisors of the district for one or more 3-year terms, SCS technicians who have worked with the district since 1937, and the three Extension representatives who have been county agents since the district was created.

Latah Soil Conservation District is outstanding for more than effective teamwork. It is the first district organized in Idaho, growing

out of one of the first soil conservation demonstrations established nationally. It won the Goodyear Award for outstanding services in 1953-54. It has about 1,200 active cooperators who operate nearly 300,000 acres—more than 78 percent of the land in Latah County.

The district has been cited for operating excellence. It had an important part in organization of state and national soil conservation district associations, has been highly influential in the launching of other soil conservation districts in Idaho and adjacent States, and was a leader in establishment of the women's auxiliary for wives of supervisors and cooperators. And, the women have done a top-flight job in developing the education phase of the district program, particularly in getting soil and water conservation studies established in public schools.

For 15 years Latah Soil Conservation District has always had the assistance of Soil Conservation Service technicians who are remembered and appreciated by supervisors and co-operators. Latah is different from most other districts because these technicians do not work out of one office at Moscow, the county seat.



Men who have been supervisors of Latah Soil Conservation District and the three county agents who have served as secretary for the board: in the lower row, left to right, are members of the first board of supervisors—Guy Kitch, Henry Bottjer, Ralph Naylor, K. D. Ingle, Roy Emerson, and secretary G. T. McAlexander. Above are others who have been supervisors or secretaries during the past 15 years: left to right, Roy Glenn, Jones McCown, George Comstock, Harley Eichner, Kenneth Wilkins, Oscar Hoseid, Harry Benscoter, Eugene Thompson, Reuben Bauer, A. E. Koster, Harold Snow, John Luedke, Frank Brocke, Fourth Thomas, and Elbert McProud.



Henry Bottjer of Moscow, Idaho.

They are distributed over the district in four different stations, called subunits. Each is responsible for work in his area, but when emergencies or special problems arise they step over the line and help one another.

Latah also is different because its fleet of equipment is not housed at the county seat. The light machines and tools owned by the district—12 to 16 pieces—are located at 6 different depots. These are centrally located where farmers can get to them easily. The supply centers, as agents of the district, keep the equipment in good operating condition, and handle all transactions, including service charges, with the farmers. Once the district was in the heavy equipment business. That was in its earliest years, and since then contractors have done the heavy business, which had been a headache for the supervisors and staff.

Paradoxical as it may seem, Roy Emerson, a district patriarch points out, "It is this method of spreading out services over the whole district, making it easier for busy farmers to get help, that has made a smoothly functioning team."

Throughout the years close cooperation between the district, SCS technicians, and the schools of agriculture, engineering, and forestry at the University of Idaho at Moscow, has produced many direct benefits for all participants.

Perhaps the cooperative spirit that the district has developed is best demonstrated in the educational phase of the program: 1,600 soil and water conservation posters, done by school boys and girls were displayed in Moscow store windows at one time, and numerous others were shown in other communities in the district. Nearly 1,500 jingles were submitted by school children in a district-wide soil and water conservation competition. The cooperative spirit also is found in 6 annual community agricultural days sponsored in the district, and in many agricultural tours on the ground and in the air. Likewise, it is to be found in soil loss and woodland experiments, weed control studies, alfalfa establishment tests, studies of returns from conservation farming, sprinkler demonstrations, and so on. Then there is the annual soil and water conservation issue of the *Daily Idahonian*. And neighborhood meetings, at 58 of which, 400 farmers participated in one year.

All of these developments, and many more activities, have come about because Latah Soil Conservation District has won the respect, confidence, and support of nearly all Latah County farmers, large numbers of nonfarm people, local newspapers and radio stations, schools, colleges and churches, and almost every kind of an organization you can think of! Double barreled teamwork has made the Latah Soil Conservation District IT in Latah County. As Fourth Thomas of Princeton, a former chairman of the group, says, "Latah goes about keeping its soil and water conservation program in operation, not just for today or for tomorrow, but for as long as we depend on the soil to furnish nourishment necessary for life."

G. T. McAlexander, who was county extension agent when the district was born, pointed up importance of overall teamwork when he told the reunion gathering that "No one bunch did it all. We all just worked together." And Guy Kitch of Troy, one of the original supervisors, recalling early difficulties with heavy equipment, referred to McAlexander as "vice president in charge of balky machines." Latah Soil Conservation District has been lucky, Kitch declared, "because we have had good SCS technicians, and three good county agents."

When Roy Emerson of Genesee was introduced as a supervisor and district treasurer who had served for 21 consecutive years and had been a main cog in organization of the district, it was declared that he is one "to whom a monument should be erected in recognition of the good that he has done for the whole county."

Fourth Thomas pointed to need for developing a program that will encourage farmers to stay with conservation farming once they have established the system on their land.

One of the four women who were guests of the supervisors, Mrs. Jo Ann Thompson of Moscow, presented the essay that she had prepared in national competition, sponsored through the National Association of Soil Conservation Districts, under the title "Goals of My Soil Conservation District." She is the wife of Supervisor Eugene Thompson.



The SCS team servicing the Latah Soil Conservation District: bottom row, left to right, J. M. Rabdau, Mrs. Winifred D. Hodgson, John T. Nicholas; top row, Manning Onstott, Harold Felgenhauer, Larry Sorensen.

Attending the reunion were former and present supervisors representing all parts of the county. At the head table with Henry Bottjer of Moscow, who served 6 years as chairman and who at 76 is dean of the group, were Ralph Naylor, Roy Emerson, King Ingle, and Guy Kitch, members of the original board; and Jones McCown, Harry Benscoter, Harold Snow, Fourth Thomas, Frank Brocke, A. E. Koster, Harley Eichner, Kenneth Wilkins, George Comstock, John Luedke, Roy Glenn, Eugene Thompson, and Oscar Hoseid. Glenn, Luedke, Comstock, Thompson, and Hoseid are present supervisors, Glenn being chairman. Kitch, Snow,

Thomas, Koster, and Eichner, along with Bottjer, also have been chairman.

At other tables were the current technicians of the SCS, James Rabdau, John Nicholas, Manning Onstott, Harold Felgenhauer, and Lawrence Sorensen; the two former and present county agents; Mrs. Winifred D. Hodgson, SCS office clerk; Miss Martha Darscheid, ASC-ACP clerk; Mrs. Jo Ann Thompson, and Mrs. Maribel Schupfer Samuelson, reporter-photographer for the *Moscow Daily Idahonian*. Rabdau, who heads the SCS staff at Moscow, has been a SCS technician in Latah since 1937, 3 years before the district was organized.

From the supervisors' angle, Harold Snow of Moscow, looked back over the district's years and commented: "Soil conservation district supervisors serve without compensation of any kind, either salary or travel costs. Those of us who have served on the board of supervisors consider that it has been an honor and a privilege. True, it has taken a great deal of our time and sometimes cost us money out of our own pockets, but we are more than repaid by seeing the way farmers and ranchers are saving and improving their soil with the help the district is able to offer."

Roy Emerson, who has been farming since 1912, sees the current Latah situation this way: "General improvement in soil and water conditions is manifest throughout the county. Yields have been materially increased since farmers began to make better use of their land and protect it for future needs. Compliance with conservation plans made with the district, and maintenance of work are satisfactory. Cooperators' participation in the ACP cost-sharing program has advanced conservation farming and helped about 650 families. Over a 10-year period about \$100,000 in ACP cost-sharing funds have been invested annually in this county. The district and SCS have helped ACP, and ACP has helped them. We have no disappointments. We have a good healthy program. The only trouble is that there are not enough farm planners and other technicians to handle all the work that the cooperators want to do."

PASTURES HELP.—Improved pasture stabilizes the soil—stores soil fertility for future use.

Range and Wildlife Improved

Staggered borrow pits along cattle walkways and roads increase the value of the range and improve wildlife habitat on gulf coast marshes.

By FRANCIS J. EZERNACK

RANGE conservation plans by marshland cattlemen in southern Louisiana are setting a pattern that promises to benefit wildlife as well as cattle production throughout the whole marsh area of the gulf coast.

The large expanses of unfenced marshes produce an abundance of grass that landowners have used for grazing their cattle since the country was first settled. When the marsh is dry, cattle roam at will. When water covers most of the country, the cattle graze along the ridges, or cheniers, which mark the sites of successive old gulf beaches, usually paralleling the present coast line.

Robert E. Williams, Soil Conservation Service range conservationist, points out that over the years a strain of crossbred cattle has been developed, probably as much through natural

selection as planned improvement—cattle which withstand heat, endure insects, and when necessary graze in water that is belly deep. The ridges serve as bedding grounds, calving locations, and resting places for young calves while their mothers graze.

When the water in the marshes is high, overgrazing of accessible areas result, even when the range is properly stocked, while lush growth of forage on inaccessible areas goes unused. There has always been a problem, of how to get more uniform use of the marsh range and thereby avoid overgrazing of some areas.

In seeking a solution to this problem, Mayo Boudreaux, a cooperator with the Gulf Coast Soil Conservation District, and SCS technicians assigned to the district decided to build a levee, or walkway, that would enable Boudreaux's cattle to travel more readily between the higher-lying areas of the marsh and to graze more of the lower areas.

Note.—The author is farm planner, Soil Conservation Service, Lake Charles, La.



Cattle bedding down on walkway on the Mayo Boudreaux farm.

The soil conservation district governing body agreed to the use of the district-owned dragline to build a levee on a trial basis. Boudreax constructed the first levee along a fence boundary according to the conventional method, with earth excavated from only one side. This left a continuous ditch extending the full length of the levee through which water could move freely.

It became obvious that this type of continuous-ditch construction, if used extensively in the open marsh, would result in a greater or lesser degree of drainage, which would be detrimental to wildlife. The continuous ditch would also prevent cattle from having ready access to adjacent areas of the marsh on the side of the walkway where the ditch was located.

To avoid these difficulties, a design was worked out for staggering the borrow pits from one side of the levee to the other, leaving alternating plugs of earth between the pits which would prevent the water from draining out. Because of the high water table, this has resulted in permanent areas of open water along the walkways. These staggered borrow pits provide about 2.5 acres of open water for each mile of walkway constructed.

Many landowners in the area are much concerned about maintaining optimum conditions for wildlife. Some of them derive a considerable portion of their income from trapping fur-bearers and are interested in improving the marshes for ducks, geese, and other waterfowl. So, the system of building walkways with staggered borrow pits has won their approval, even though most of them were skeptical at first.

Following the original work done on Boudreax's marsh range, SCS technicians developed a standard design for cattle walkways, with a minimum flat top width of 10 feet, a settled height of 2 feet or more above normal water level, and a berm width of 10 feet on each side of the walkway. Bridges or culverts are specified where walkways cross natural drains.

The staggered borrow pits average about 660 feet in length, with alternating sections of earth of the same length between the pits. This not only prevents water from flowing from the pits but also enables cattle to travel from the walkways into the marsh from either side. On property lines, pits may be left on the outside of the



Olin Dillon, SCS biologist, examines seed heads of coast cockspur.

levee only, provided plugs at least 16 feet in length are left at intervals to prevent the flow of water in the pits.

SCS farm planners in the area say that cattle will graze about one-fourth of a mile on each side of the walkways under normal conditions. So it is recommended that walkways be at least a half-mile apart where more than one walkway is constructed in a single range unit. This enables cattle to use the range to the maximum extent on both sides of the walkway.

SCS planners also emphasize the need for adequate fences, stock water facilities, and feed reserves for critical periods to balance out a complete conservation plan for marsh ranges.

Olin Dillon, SCS biologist for the gulf coast marshes of Louisiana and Texas, points out that uniform grazing of the marsh, is beneficial to wildlife. Grazing opens up the marsh to some extent, and permits fuller use by ducks and fur bearers.

The Louisiana Wild Life and Fisheries Commission also support this view, pointing out in its fifth biennial report that forced cattle grazing in many areas has aided in opening up dense stands of sawgrass, which are unsuitable for use by either ducks or geese. "In areas where grazing can be controlled," the report states,



Oil companies have cooperated with ranchers in using staggered-pit construction for levees and roadways.

"it can be a valuable tool in managing a marsh for wildlife."

Development of staggered pit walkways has centered in Cameron Parish, where the practice originated, but it is spreading to other areas. During the past 5 years, 60 miles of walkways have been built in the Gulf Coast Soil Conservation District, which comprises Cameron, Calcasieu, and Jefferson Davis Parishes. More than half of the area of the district is marsh. Cattle walkways may extend from ridges out into the marsh 3 miles, but generally they are much shorter. Average cost per mile has been about \$1,300, exclusive of cost of culverts or bridges.

Range Conservationist Williams reports that there are more than 2 million acres of marsh grazing lands in Louisiana alone, with similar important areas within other States along the coastal marsh belt extending from Texas to Florida. So the possibilities of development of walkways, with consequent benefits for grazing and wildlife, are great.

This wintering area for a large percentage of the waterfowl of the Mississippi Flyway is of vital importance to wildlife. In addition to ducks, geese, and other waterfowl, furbearers such as muskrats, mink, and otter, are a resource of tremendous economic value.

During recent years, a large rat-like animal from South America, called the nutria, has spread extensively throughout the marsh area. Although the pelts of nutria are more difficult to cure than those of the muskrat, they are worth about three times as much.

Lionel Theriot, who runs about 700 head of cattle on 1,800 acres in the area around the

Grand Chenier and other leased land, expresses pretty well the reverent feeling these people have for the marsh.

"I'll tell you what I think about the marsh," he says, "I think we ought to leave it just like the Good Lord made it. You don't want too much water, but you don't want to drain it, either."

"I noticed the water in these closed pits along the walkways during the severe drought we had, and it didn't go down more than 8 or 9 inches. These pits were the only thing that saved the nutria. Some people made as much as \$2,500 last year trapping them."

A high water table in the marsh is desirable also for crop production, Mr. Theriot contends.

"As long as you've got water in the marshes, you can raise corn on the ridges," he says. "But when the marsh dries up, goodbye corn!"

J. H. Meaux, of Creole, who has 2 miles of cattle walkways on his marsh range, points out that in addition to providing water for muskrats and nutria when the marsh is dry, cattle walkways prevent the cattle from bedding down on muskrat mounds.

The design for walkways developed by SCS technicians has been approved by the board of supervisors of the Gulf Coast Soil Conservation District, which makes equipment available for constructing walkways. It has also been approved by the ASC Committee.

Probably even more significant is the fact that oil companies, which have begun extensive drilling in the marsh area within recent years, have adopted the staggered-pit design in building roads for transporting materials to and from well sites. This provision is now gener-

ally included in lease contracts between the oil companies and the landowners.

Although this method is somewhat more expensive than the old single-ditch construction, oil companies have readily adopted it. W. E. Merriman, Head of the Fee Land Department of Stanolind Oil and Gas Company, in discussing this phase of the company's operations explained their position in this way:

"We are always glad to work with the marshland owners to protect their wildlife and grazing resources. We try to cooperate with them in every way possible. As you know, we too are vitally interested in wildlife. We spend thousands of dollars every year to maintain a private wildlife refuge in Vermillion Parish."

A similar attitude was expressed by J. C. Watson, district engineer of the Louisiana Department of Highways.

"We are favorable to staggering the borrow pits along our highways in the marsh if the people request it," Mr. Watson said: "Our policy is to build the road above the water level and let the water do what it always did."

The staggered-pit method of construction has already been used, at the request of landowners cooperating with the soil conservation

district, on one 4-mile stretch of the new road being constructed through the marsh from Grand Chenier to Pecan Island in Vermillion Parish.

Wildlife advocates, cattle producers, and oil companies represent three major interests involved in use of the vast expanse of marsh along the gulf coast. And construction of highways through the marsh is likely to become another factor of increasing importance.

The viewpoint of all these interests is represented in a special way by the residents of the Grand Chenier, who run cattle in the marshes, trap muskrats and other fur bearers, work for oil companies, and in recent years have had ready access to the outside world over a paved highway.

Their increasing interest in evaluating any new development in relation to its effect on wildlife may be a good omen. For in any conflict of interest, past experience has shown that wildlife is likely to be the most vulnerable to the inroads of "progress."

This new development, therefore, important as it may be as a means of making more effective, safe use of the marsh, may be tremendously more important as a symbol of how various interests may find an area of agreement in multiple resource use, backed by popular support.

In such an approach to the complex problems involved, local soil conservation districts, as representatives of the people in seeking to develop a coordinated approach to the varied problems of soil and water conservation may have an increasingly important role.



A trapped nutria.

PLANNING NECESSARY.—A sound soil and water conservation plan for the farm cannot be developed by guesswork. First, you must have an inventory of the land. By voluntary request of the landowner Soil Conservation Service technicians who are assigned to each soil conservation district make a soil and land use map of each acre.

DAILY NEEDS.—Each individual depends directly on products of the soil for daily needs of food, clothing, and shelter. Seventy percent of all goods sold at retail each year are made up of items coming from the soil.

A New Year of Conservation Opportunity

By DONALD A. WILLIAMS

IT is natural to look back on the accomplishments of past years—and those accomplishments in soil, water, plant, and wildlife conservation have been gratifying indeed. But looking back at what we have done is chiefly valuable as it helps us lay the groundwork for redoubled efforts in the years ahead.

I think we can look forward, in 1956, to one of the most challenging years we have ever had in resource conservation, from the standpoint of real opportunities for exercising leadership, technical skills, teamwork, and community action. Unprecedented public interest in our soil, water, and related resources is being reflected by the increasing demands for their conservation treatment and use.

The scope of this conservation trend is even broader than that of soil conservation districts alone. It is a growing concept that takes in all the resources of the community, the State, and the Nation. It involves entire watersheds as well as the individual farms and other properties making up those watersheds. It has to do with all manner of resource needs—watershed protection and flood prevention, expanding grassland farming, tree planting, and woodland conservation; water management and conservation and irrigation; development and protection of wildlife habitat; and such special land use problems as the increasing conversion of agricultural lands to urban, industrial, and other nonagricultural uses.

During the last 2 years, I have been in virtually every State, Puerto Rico, the Virgin Islands, and Alaska, and have met with or talked with thousands of soil conservation district people and others concerned with the management and use of our resources. These have included state agricultural, forestry, and conservation officials; reclamation, flood control,

watershed association, and other water interests; businessmen, sportsmen, and others. Everywhere, I found not only a sharp awareness of the important conservation job we still have to do, but a definite attitude of willingness and determination to pitch into the job harder than ever and speed up our national action program of soil and water conservation in every way possible.

The major attention being given to farm and watershed resource conservation clearly shows the forward direction in which we are moving in this essential undertaking. It also indicates the potentially increased conservation opportunities and responsibilities that lie ahead.

Take, for example, the Advisory Committee on Soil and Water Conservation named last fall to advise the Secretary of Agriculture and his staff and Department agencies dealing with soil and water conservation. Creation of the Advisory Committee is the latest move by the Department to get counsel in the States. The 18-member committee represents a wide range of soil and water conservation interests geographically spread over the country.

Committee members have shown themselves to be well informed, and eager to contribute to the betterment of our national soil and water conservation program. Also, several members in committee meeting have recognized the key role of soil conservation districts as logical vehicles to help expedite conservation programs. One of these, for example, is the "Program for the Great Plains" developed a few months ago by the Department of Agriculture with the cooperation of the Great Plains Agricultural Council and now recommended to Congress by the President. This program, providing for good land use to be made a primary consideration in the various conservation, credit, and other programs in which the Department participates, well may set a pattern for more effective integration of conservation in our other agricultural programs.

Note.—This article is based on an address made by the administrator of the Soil Conservation Service at the annual meeting of the South Carolina Association of Soil Conservation District Supervisors, Aiken, S. C., Jan. 11, 1956.

The National Watershed Congress, the second of which was held in Washington last December, also has brought together leaders from throughout the country in constructive consideration of the highly important water conservation and development aspects of our resource conservation efforts. Farmers, businessmen, conservation leaders, and others taking part have made many good suggestions, including proposals for making the 1954 Watershed Protection and Flood Prevention Act of maximum effectiveness and adaptable to local water and land situations.

The watershed development aspect of our soil and water conservation program, meanwhile, is moving ahead with all indications that this activity will be substantially stepped up this year in soil conservation districts and communities over the country. The renewed emphasis upon watershed conservation already has seen intensified land treatment and structural work pushed ahead in the 60 pilot watershed projects for which Congress first appropriated funds in 1953. And watershed studies and planning have proceeded during the last year on locally sponsored projects proposed under the Watershed Act, Public Law 566.

A total of 430 applications for watershed planning assistance under this Act had been received up to Jan. 1, 1956, and 129 had been authorized for such assistance. Work plans have been completed for a number of the authorized watersheds. Some of the plans are undergoing final federal and state agency review, and several others are in the process of being transmitted to Congress.

The latest proposal to focus national interest on broadened conservation and land use is, of course, that which the President has made to Congress for diverting lands not currently required for production of certain crops to the growing of grass or tree crops, and thus convert those lands into a "conservation reserve." I shall not undertake to speculate on the outcome of this proposal, advanced by the President; but I think it is obvious that such an undertaking unquestionably would be of direct concern to all soil conservation districts.

As our conservation job takes on these broader proportions, particularly in the fields of water and other developments of community, state and regional as well as national interest, the opportunities and responsibilities of soil conservation district supervisors and cooperators, Soil Conservation Service personnel, and everybody else on the resource conservation team are increased accordingly. The districts, as legally constituted local agencies responsible for land use planning and treatment, occupy a key position in these developments.

The Soil Conservation Service, as the technical agency of the U. S. Department of Agriculture in the fields of soil and water conservation and flood prevention, finds itself called upon, in turn, for the utmost production of its soil surveys, conservation farm planning, and other available facilities provided through districts. There likewise are increasing demands on conservation research, educational, and financing facilities. These are available through the Department, the State Colleges of Agriculture, Experiment Stations, and Extension Services, and through other governmental and private sources.

We are fortunate in this country, I think, in being able to draw upon the experience, the organization and the facilities at our disposal in carrying out a coordinated program that includes all the pertinent elements of the total conservation concept. We have the public understanding and support I've already mentioned. We have the physical and, importantly, the human resources behind the conservation effort. And we have the organization and program facilities represented in soil conservation districts.

These include, besides essential local and State organization, authorizations, and facilities: Soil Conservation Service technical aid, Agricultural Conservation Program cost-sharing, conservation credit through private banks, the Farmers Home Administration, and other agricultural credit sources; farm forestry assistance through State forestry agencies, the U. S. Forest Service, and private foresters; and such other specifically authorized aids to conservation as the watershed protection and flood prevention machinery and the Great Plains Program.

It has taken time for general public awareness of the Nation's soil and water conservation problems and needs to develop, and for building up the local, State and Federal facilities we now have for dealing with them. And it took the vision and persistence of many conservation leaders to bring us where we are today.

Incidentally, you may be interested in learning, as I was, that the total area of soil conservation districts now has passed the 1½ billion acre mark. And, if anybody asks you for more statistics about the districts movement, here are a few figures that are easy to remember: About 80 percent of all the land in the United States is within district boundaries, as is 85 percent of our farmland and 90 percent of our farms and ranches. Exactly a third of the States are completely covered by districts, as are Puerto Rico and the Virgin Islands. Also, there are nearly 13,500 locally chosen officers who are voluntarily serving their neighbors and communities by directing the affairs of the Nation's nearly 2,700 districts.

These figures are significant because, among other things, they point up the fact that our primary objective of getting conservation on the land—watershed by watershed, farm by farm, acre by acre—has not changed. In fact, the expanding conservation demands and responsibilities actually serve to underscore this basic principle. This is true whether we are thinking in terms of an individual soil conservation district's

program, a watershed protection project, the Great Plains Program, or whatever.

I should like to say something more about this matter of conservation farm planning; because it is a basic and continuing responsibility we have—supervisors, and cooperators, and technicians together—in 1956 and the years ahead.

In the first place, it is not the technicians' job to write conservation plans and give them to the farmers. The farm plan must be the plan of the farmer himself, tailor-made to his own needs, with the technician helping him to work it out, as requested by the district board of supervisors. It is the farmer's plan, and he doesn't have to be content with a plan that contains things he doesn't want or need.

A conservation farm plan, to be fully useful and meet the purpose for which it is intended, must be adapted to the present needs of the farmer and his land. One of the most important challenges to all of us is to keep conservation farm planning up to date. We can't expect a plan drawn to a 1940 pattern to fill the bill under 1956 conditions.

To keep conservation planning in tune with the times and with the thinking of the farmer who is going to use the plan in his operations calls for his full understanding of what his own soil and water conservation problems are. It calls for his own thinking about the program for his place that is to be carried out over a period of time. District supervisors have a real opportunity and responsibility to help farmers to this necessary farm planning understanding—to their advantage and to the benefit of the overall district programs.

Obviously, supervisors have to use every practicable means of spreading their responsibility and leadership, their counsel and advice on conservation farm planning and other problems and solutions under the district program, out into the different communities and on down to each farm operator. Actually, district leadership means not only that of the supervisors themselves but also of individual cooperators and groups of operators.

It is a question of "communication" between the supervisors and the district cooperators. It is a matter of the supervisors' keeping all the cooperators informed, as well as providing information to those who are not cooperators. This may call for having assistant district supervisors, training of others for adequate leadership, or finding other means of spreading the job.

The same concept is involved, of course, in watershed planning. It is simply broader, involving groups and community interests. But a watershed plan just as surely must be in keeping with the needs of the people affected. So a watershed plan also must be the local people's plan, based on all the available information and experience of those who occupy watershed lands and the agencies which have anything to contribute to developing the best plan there is to be had. The local-State-Federal partnership principle in watershed undertakings is just as important in their planning and development as it is in their cost sharing aspect.

This, actually, is just the old fashioned *teamwork* principle that has been recognized as basic to the conduct of a successful soil and water conservation program from the earliest days of soil conservation districts, and before. Whether it is in day-by-day districts' programs, in watershed developments, or whatsoever conservation undertaking, the teamwork of all local, state and federal interests, government and private, is essential.

In most districts, for example, the supervisors draw upon services or facilities of various agencies and groups, from county officials to State agencies interested in soil, water, forest, wildlife and other natural resources. All of these agencies are essential to the furtherance of district programs, and to the progress of the whole national program of soil and water conservation. You can't take them for granted, because it is a cooperative working relationship that is involved.

Neither, may I add, do we in the Soil Conservation Service presume to take for granted our working partnership relationship with these other agencies and with soil conservation districts. We realize only too well that we have to work at our job of giving districts the technical help they ask us to provide, as the job assigned to us by Congress and the Secretary of Agriculture.

A particularly good example of how effective teamwork of local, State and Federal agencies and private interests pays off is to be found in the progress that has been made in tree planting and the spread of woodland conservation practices, in the Southeast and elsewhere, spurred on by the increased demands for the "green gold" represented in pulp and other wood products. During the past 5 years, district cooperators in the United States have planted trees on approximately 1 1/2 million acres, including 15,000 miles of windbreaks.

The Soil Conservation Service has been glad to help in this important part of the soil and water conservation program, but we certainly do not claim all the credit by any means. Our Service farm planners are trained and advised by our woodland conservation specialists strategically located to serve the needs of the States. They are available to assist on woodland aspects of conservation farm development in cooperation with such public and private interests as the state foresters and private nurseries.

An estimated 25 million acres of land in districts needs to be put into trees, principally by planting but some of it through natural regeneration. The bigger part of this land is now being cultivated; but soils-site index correlation checks made in several States show that such lands now in timber are producing higher returns from wood crops than higher capability lands are producing from many cultivated crops.

At least a third of the 25 million acres that is best suited to trees is under cooperative agreement with soil conservation districts, and thus is favorably situated to be managed effectively for tree production as part of a profitable operating farm. This integration of farm forests and farm woodlots with cropland uses is essential to an effectively coordinated soil and water conservation program. We can better appreciate that

this is a basic part of the total soil and water conservation plan on any farm or watershed when we remember that most of the Nation's woodland, especially in the Eastern States, is in private small ownership.

The Soil Conservation Service is not a forestry agency, but is an agency dealing with soil and water conservation problems across the board on the Nation's farms and watersheds. We recognize the Forest Service as the subject matter specialist in forestry for the Department of Agriculture. Our two agencies' joint policy is to use our respective available resources in collaboration with the state foresters, to assist State, county and local units of government as well as conservation organizations, private industry, consulting foresters, and other interested persons in helping landowners to improve their woodland conservation practices.

The resource conservation job—and the woodland conservation part of that job—is too big for any one agency, governmental or private, to do alone. It is essential that everybody work together at the job of proper use of the land and the trees or other vegetative cover that grow on it. Although the Soil Conservation Service assists farmers to plan and carry out soil and water conservation on their woodlands, we encourage those owners to take advantage of the services of private professional foresters or foresters with the State forestry departments.

The important objective, of course, is to get landowners to use woodland conservation practices, along with other needed soil and water conservation measures, on all their land. And, as experience invariably has shown, the more that farm woodland owners' interest is stimulated in this important crop, the heavier are the demands for the services of all available forestry specialists.

Timber and the other resources with which we are specifically concerned—soil, water, grass, and wildlife—are the people's and the Nation's resources, State by State, county by county, watershed by watershed, and farm by farm. Their intelligent use for maximum individual and public benefit comes down to a question of the exercise of individual and community responsibilities, and the practical application of the best available knowledge from all sources in their management. Federal assistance is made available for helping farmers and community groups to do those things they are not in position to do alone, but which clearly are in the public interest.

Dealing with any or all of these resources clearly calls for developing and making the fullest use of soil conservation district facilities. That is only another way of saying that we have to continue looking for more ways of increasing our efficiency on the conservation job in 1956 and the future—as district supervisors and cooperators, as assisting technicians, and as the whole team of cooperating local, State and Federal interests.

The need and opportunity for a concerted approach are especially evident with respect to one of the most pressing problems we face in resource conservation. That is the conservation management and use of water,

with a train of problems ranging from soil erosion, flood, siltation, and drainage to the competition for water for irrigation, municipal, industrial, and other uses.

Water no longer is looked upon as just the primary concern of the West. It is becoming apparent to more and more people that water will become a significant limiting factor to expanding agricultural production and the growth of our entire economy in the years ahead. Water management thus will become one of our most important conservation activities from here on out. It also has become apparent that water development and management are inseparable from land management and use.

We are well aware, of course, of the mounting significance of the water aspects of conservation, including the increasingly important part that irrigation is playing in the changing agricultural pattern throughout the Southeast and other humid areas of the Eastern United States.

Take South Carolina as an example: Of the 2,780 irrigation reservoirs, 35,400 acres of irrigated water management, and 960 sprinkler irrigation systems reported for soil conservation districts to date, a substantial proportion was installed in 1955. Those figures indicated another of the continuing big jobs ahead in 1956, along with the continuation of such other water developments as the more than 10,600 farm ponds built in that State and the 618,500 acres of conservation farm drainage reported.

I was interested, too, in learning from State Conservationist Tom Buie that among the substantial amounts of their own funds that South Carolina farmers are investing in carrying out soil and water conservation practices was an estimated \$1,350,000 they put into irrigation facilities and equipment alone during the first half of 1955.

I am sure you will agree that such investments to help assure the continued profitable production of the food and fiber in the amounts needed when we need them are money well spent. Anybody who lives in the South or who has traveled there over the last 20 years or so cannot fail to observe the widespread confirmation of this fact on every hand. It also is gratifying to see the reports that come through on the individual and community benefits that continue to pile up from conservation farming, particularly in the shifts that have been made from single cash crops like cotton to the inclusion of grass and legumes and livestock production.

There has been a big increase in production of sericea seed, for one, since 1954, with as much as \$500 worth an acre harvested from fertilized stands, and some of it produced on land no longer suited to growing cotton or corn. Also, there was a substantial jump in blue lupine acreage over most of the Southeast. The acreages of such valuable plants as coastal bermuda-grass, Bahia grass, and tall fescue are being greatly increased not only for immediate livestock consumption, but also in conservation crop rotations. And we find a like trend toward grassland farming in many other regions.

This is just one of the ways we can tackle the important job we have to do, conservation-wise, in 1956 and beyond. We have made great strides in the last two decades or so—most gratifying progress, indeed—across the land. But the scourges of water and wind erosion, soil depletion, floods and other enemies of our soil, water, and allied resources still have not been overcome to the extent they can and must be in the shortest practicable time.

These are two side-by-side headlines that splashed the front page of our Washington morning paper Christmas day: "Coastal Floods Spread; Another Storm on Way," and "Dust-Laden Winds Lash Colorado at 104 MPH." You may remember also the hurricane headlines during 1954 and 1955, and appreciate the problems of stream channel clearing, drainage, and so on that still have to be met.

These calamitous blows at our land and water resources make the headlines. Less dramatic, but nonetheless real and costly of both physical and human resources, is the year-by-year whittling away of altogether too much of our resource reserve of soil, water, grass, timber, and wildlife on the Nation's farms and watersheds. We can be proud that we have the opportunity to assist in solving some of those resource problems that so importantly affect our whole economy and welfare.

As the President said in his State of the Union message to Congress on January 5: "No other resource is so indispensable as the land that feeds and clothes us. No group is more fundamental to our national life than our farmers."

That pretty graphically sums up the challenge to all of us in this conservation field as we move into the new year. There is only one direction in which we can go—and that is ahead!

NEW PASTURE AND RANGE INVESTIGATIONS PROJECT ESTABLISHED.—The forage and range section of the Agricultural Research Service has conducted research on pastures and ranges in the West for many years. Its responsibility in this field has been considerably increased as a result of the recent transfer of certain phases from the Forest Service.

Because of the increased responsibility the forage and range section has established a new western pasture and range research project under the leadership of Dr. R. E. Wagner, research agronomist of the ARS, to better coordinate both old and newly acquired phases of the program. All pasture and range research in the Western United States that is conducted by the section is included in this project. Emphasis is given to grazing management in the Great Plains and to range reseeding, species adaptation and fertilization throughout the West. Irrigated pasture research is also a part of the project.

My Job As A Supervisor

By HOWARD GEERS

WHEN I was asked to talk on my duties as a soil conservation district supervisor at the South Dakota Supervisors' annual meeting, I readily accepted thinking that it would be an easy subject to talk about. I have been a district supervisor for about 8 years. Our soil conservation district has won the Goodyear Achievement Award. We have been made a pilot district on public lands conservation. Our district has sponsored radio programs, has shown movies on conservation, published annual reports, held tours, and carried on many other educational activities while helping our



Howard Geers.

farmers and ranchers plan and apply soil and water conservation measures to their lands. Knowing these things I thought I had nothing to worry about.

Driving home that night, after accepting this invitation, I started wondering, "What was my job as district supervisor? Had I been doing the job I was supposed to do? Were there any set rules for a supervisor to follow?"

The next morning I started searching for something that would give me a definite plan to follow in my speech. I spent 2 days going through every book and paper in my house pertaining to conservation, and I came to the conclusion there were no set rules for a supervisor to follow. I knew that a supervisor did not have to be well versed in the mechanics of conservation—that was the job of the technicians furnished by the Soil Conservation Service. The educational part was ably taken care of by our county extension agent.

I finally decided that though the duties vary greatly from district to district, there are four "musts" which I, or any other conscientious and capable supervisor, must meet.

First, my farm must be an example of conservation. If my farm is not a good example of practical conservation, I cannot talk conservation to the cooperators in my district without being reminded that my own farm is a poor example.

Second, I must be a diplomat. Diplomacy is used every day by a district supervisor. Occasionally a cooperator becomes fighting mad at the conservationist in my district. It is my job as a supervisor to get the cooperator's side of the misunderstanding along with the conservationist's story and find which one is at fault, or if both are to blame for the misunderstanding. Then comes the test of my ability as a diplomat. If I can get them together and have them part friends and still be friendly to me, I am a diplomat and a good supervisor. It is my job to keep the cooperators on friendly terms with the district, the Soil Conservation Service personnel working in my district, and keep Soil Conservation Service, Agricultural Stabilization Service, and Extension Service personnel working as a team to get an efficient job of conservation on the land.

Third, I must be a financier. My district must have enough money to pay the expenses in-

curred by me and the other supervisors in carrying on the business of the district. I am like many farmers; I cannot afford to give unlimited time and money. If even part of my expenses are paid by the district, I will do a better job of being a supervisor.

Fourth, I must run the business of my district. I find in analyzing some of my past actions that a great part of the work we supervisors should be doing is being done by the SCS work unit conservationist. He has all he can handle on the mechanics of conservation and applying it to the land without doing my job. It is important for the district to have a work plan each year and to follow that plan. It is easy to take the Goodyear score sheet, put down many things you plan to do for the coming year, and then forget them. If I only have one item on part of this work plan for the year and complete that plan I have accomplished something worthwhile.

Fellow supervisors, if you do not feel you have the time or qualifications to follow the duties I have outlined as "My Job As a District Supervisor," for the good of South Dakota and the Nation, resign. There is a farmer or rancher in your district who can and will do the job.

VERMONT BROTHERS IMPROVE FARM

(Continued from page 198)

"We have to put the cattle out early in the spring to keep the forage down," Eustache said. "Last spring we put them out May 7. Next spring we're going to put them out May 1, weather permitting. You've got to know when to graze your pastures. Main thing is not to let the grass get too tall and coarse."

"Best thing is that our farm is still improving," Eudore said. "Right now we need more cows to keep up with the grass growth. We've got forage and hay to spare. The way things look now, we're all going to stick to farming."

WATER USES.—Water for all uses in the United States has doubled twice in the last 50 years and is expected to double again in the next 25 years.

They Keep Them Listening

By EDWARD R. KEIL

NINE years of continuous weekly radio broadcasting on soil conservation may not be a record, but it's a long time, according to George C. Moore, management agronomist of the Soil Conservation Service in western New York, and James T. McCormick, work unit conservationist at Canandaigua who are about to reach this milestone. And they're still going strong.

It all started back in July 1947 at radio station WGVA, Geneva, N. Y. Its management set up a daily 15-minute "Farmers' Guide" feature at noon and invited agriculturists to take part. Moore and McCormick, then district conservationists, joined the show. They agreed to take turns on Monday spots. That was 450 broadcasts ago.

Reflecting on the experience, Moore says: "At first, the whole field of conservation offered a wide choice of subjects. Then, as we covered the field and the glamour of newness wore off, the chore loomed as a big and routine task. After the first year or so, however, the response of listeners showed that they did not look upon the program as routine. They told us they were

Note.—The author is deputy state conservationist, Soil Conservation Service, New York.



James T. McCormick doing his radio skit to a recording machine.

getting a lot of help out of it. Their response was the inspiration we needed. Our task became easier.

"Then we had another fear. Repetition! Would we not be repeating ourselves? That fear was dispelled when we realized that life itself is largely repetitious. Then too, while the basic subject matter might be the same, there are always fresh approaches to it—new angles, new and better ways of doing something old. There is, after all, continuous variety.

The variety these two technicians get into their broadcasting is indicated by the titles of their subjects, which include such alluring titles as: Peace in Our Countryside, Winter Blankets, Running Brooks, Our Soils, Harvest Tales, Wet Weather Conservation, Good Features of a Mild Drought, Whose Water?, Snow Management, What Do You Do With Short Rows?, Are You Ready for the Next Rain?, Organic Matter From Woodchips, and Winterizing Wildlife. While the broadcasts are tuned to the current scene, the topics are announced 2 weeks in advance.

As to techniques, Moore ad libs from an outline in a live broadcast. McCormick has gone modern; he uses a tape recorder provided by the Ontario County Soil Conservation District.

For a while McCormick's main street office gave him trouble. Street noises had a way of getting onto his tapes. Then he moved to Ontario County's new agricultural center beyond the range of modern traffic din. Now he has the tapes all to himself.

"The main thing is to be sincere," Moore says. "If you don't believe in what you're saying, if you're not sincere yourself, your listeners will soon sense that. Then you've lost your audience."

Moore has ways of keeping in touch with his audience to see if he is filling their needs. Sometimes, for example, he offers booklets or bulletins to those who will write in. Another measuring device he uses is to offer to name over the radio any farmer who gets at least 90 percent of his land under winter blankets such as sod, crop residues, winter grain, or cover crops.

Another barometer to measure his listening audience is the number of invitations he re-



George C. Moore (left) and radio announcer Alex Lamutis.

ceives to give a talk as the result of a broadcast. His radio chats have led to invitations to speak at public and private meetings on such diverse subjects as safety and farm machinery. Also his broadcasts lead to requests from farmers to visit them and talk more fully on the subject of his radio chat.

Once in a while, Moore gives a series of two or three connected programs. At such times he breaks off at a critical point, just as professional performers do. He suggests that listeners write in for the additional information if they can't wait until the next broadcast.

Moore finds that humor has its place in broadcasting even about so serious a subject as soil conservation. Once, when he was discussing farm ponds, he suggested that if they were to be stocked with food fish, goldfish be kept out. If, as was his own case, someone put goldfish into the pond, then the farmer should see to it that they were in pairs.

"But," Moore asked his radio audience, "how can you tell a male from a female goldfish when you are standing on the bank of your pond?"

Moore found out. He got 200 responses. By postal card, letter, and telephone. Some answers were, as he puts it, as silly as his question. One wrote: "Whistle! If the fish turns and looks back, it's a female."

"Enjoy your work and be cheerful over the air," Moore advises. "This way, you can pass on your enthusiasm to your listeners."

Moore and McCormick view their radio broadcasts as a pleasure, a privilege, and a responsibility.

"We try to be helpful," Moore says. "The response we get indicates that we are. That makes broadcasting a pleasant task."

REVIEWS

SOIL PHYSICS. By L. D. Baver. 3d edition. 489 pp. Illustrated. 1956. New York 16: John Wiley & Sons, Inc. \$7.75.

ALMOST a hundred pages of new material has been added in this third edition of Baver's well-known textbook. The additions appear as sentence- and paragraph-length inserts throughout the book where the author has noted recent developments in the knowledge of his subject. Each list of references at the end of a chapter contains several entries dated since the appearance of the second edition in 1948.

Besides the numerous additions covering recent literature, there are new sections on the practical aspects of the subject, such as those on irrigation, drainage, erosion, and soil conservation.

Soil conservationists in recent years have experienced a growing appreciation of soil physics. The physical properties of soils, no less than the chemical, influence crop yields. These properties change for good or bad in response to the various treatments of the soil. If fertility is one side of the coin of productivity, soil structure is the other.

Baver helps us to visualize the physical features of the soil and to understand their relationships. His dynamic approach is emphasized in the new edition by a reorganization of material to present the soil first "as a disperse system." In this system, "The clay and humus material are the active portions because of their high specific surface and their chemical constitution." The silt and sand fractions, he notes, "may be considered the skeleton of the soil."

In the succeeding chapters on soil-water systems, soil structure, soil air, and soil water, the character and performance of clays get primary attention. The fact that in the new edition the chapter on soil air is placed ahead of the one on soil water may indicate the author's high appreciation of the importance of structure in soil management.

Practical applications are discussed in chapters on soil irrigation, soil drainage, soils and

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tillage, and soils and erosion. Considerable new material has been added to the latter chapter, especially relating to control methods using vegetation and stubble mulching. There is also a new section on wind erosion.

The book had been brightened by a more emphatic typography for chapter and topical headings. These changes alone should fully justify the new edition.

—BEN OSBORN

SOIL FERTILITY. By C. E. Millar. 436 pp. Illustrated. 1955. New York: John Wiley and Sons, Inc., 440 Fourth Ave., New York 16. \$6.75.

This is intended as a textbook for college students in soil fertility and is also valuable as a reference for soil conservationists, county agents, farm managers, and others interested in the interrelationships of soils and growing plants. Knowledge of chemistry, plant physiology, and microbiology are needed to fully appreciate this book, but the material is presented with such clarity that one need not be highly specialized in any of these fields to make practical use of much of the information.

Chapter 2 is a statement of essentials for plant growth. Chapters 3 through 12 discuss each major plant food element and the more important micronutrients with respect to their use by plants and the supply in the soil.

Other chapters are devoted to soil deficiencies, soil testing, plant and tissue testing, micro-organisms of the soil, green manures, annual manures, and commercial fertilizers.

Chapter 18 gives a thorough discussion of crop rotations and farming systems. This chapter gives fundamentals and takes examples from various regions of the United States. The coverage is good but more detailed local research information is needed for specific local farm planning.

Considerable interest is added by the first chapter on the early development of agriculture and the last chapter which summarizes early field research in England and the United States.

The book is well written and reflects Dr. Millar's long experience in teaching and research. It is broad in geographical scope for the United States and is well documented with references for those interested in pursuing further any particular phase.

—R. O. LEWIS

ALFALFA SEEDED IN WIDE-ROW CORN.—Art Peterson, University of Wisconsin soil specialist, says wide-row seeding of corn with alfalfa planted between rows looks like a promising way to get more "feed value" from each acre of farmland and reduce soil erosion at the same time.

Peterson reports corn yields up to 130 bushels per acre where corn was planted in 60-inch rows, with alfalfa seeded in between the rows at various stages of corn growth. Corn yields were high for fields with either 40- or 60-inch corn rows, as long as each field had the same number of plants per acre. However, where corn rows were widened out to 80 inches, he says there was about 20 percent reduction in yield.

Farmers and farm scientists have tried several ways of seeding alfalfa in wide-row corn, but one of the best methods seems to be a combination of wheel-track corn planting and roller-seeding of alfalfa between the rows later on.

Here's the way most farmers have been doing it:

They plow the fields in the spring and plant the corn directly on the plowed ground. This means using a corn planter modified so that the corn rows and the tractor wheels are the same width. Then the tractor wheels do all the "soil packing" necessary for planting corn.

Some farmers use normal 40-inch rows with this system, while others use wider rows—up to 60 or even 72 inches. They cultivate the corn twice, then use a special roller seeder to seed the alfalfa after the corn is 18 to 30 inches tall. Some farmers remove the discs from an ordinary grain drill, straddle the corn row, and seed the alfalfa that way.

Peterson says the alfalfa usually turns out better where the corn rows are about 60 inches apart.

Seeding when the corn is only 4 to 6 inches tall may be satisfactory if the farmer uses some of the newer herbicides on the weeds. Otherwise, it's necessary to wait with the seeding until the corn has been cultivated twice, because cultivating is impossible after the alfalfa has been seeded.